Name: Miller, R. Project: STRABIS

Department: Community & Preventive Medicine

Project Description: Define the relationship of various parameters to the results of strabismus surgery. It is our intention to generate, eventually, a mathematical model representing the likely result of any combination of findings in such a strabismus patient. Furthermore, these data will be eventually organized to ascertain the most satisfactory strabismus operation for any set of findings.

To date, valuable new relationships have been established in the relationship of size, of the strabismus deviation as compared to a result obtained from surgical correction of the deviation, and in the linear relationship of the effects of tightening muscles as compared to loosening muscles for strabismus. Numerous other linear correlations have not been immediately identified as important ones, but they and other parameters will be evaluated as the study progresses.

This is an approach which is tedious and time consuming, but appears to offer a major improvement in result of strabismus surgery, a field where re-operations are required in one-third of the cases because of the inaccuracy of assessing data originally.

Name: Nall, M. Project: PSORIASI

Department: Dermatology

Project Description: Psoriasis is a chronic, scaling skin disease of unknown etiology, which affects approximately 4% of the general population (no accurate figures are available). It is a lifetime disorder which does not take life, but indeed distroys it for all age groups.

The Department of Dermatology of the Stanford Medical School is a world center for both clinical and laboratory investigations on psoriasis. As one phase of the over-all Psoriasis Research Program, the Department is engaged in a continuing investigation of the epidemiology of the disease. A questionnaire survey has been conducted from 1959 to date.

Presently, the Department is conducting Series II, III, and IV of its questionnaire survey; doing follow-up studies on the familial incidence of psoriasis and the relationship of psoriasis to other diseases, i.e., arthritis, diabetes, throat infection (The findings from Series I, which had been computerized on the 7090 are now being handled by the 360/50 and 67.).

We have applied to the National Research Council to participate in their Twin Registry of Veterans, in order to utilize the twin method in our study of the etiology of psoriasis. In addition, we are applying to utilize their registry of veterans in a large scale epidemiology investigation.

Name: Nall, M. Project: MYCOSIS

Department: Dermatology

Project Description: Mycosis fungoides is a fatal skin disease of unknown etiology. Various chemotherapeutic agents (i.e., nitrogen mustard, steroids, etc.) have been utilized to abate this disease, but the X-ray and electron beam are the only techniques that have proven effective in producing remissions. The Stanford School of Medicine and the Massachusetts General Hospital are the only facilities in this Country, who have applied the beam in treating mycosis fungoides; although recently the Varian Company has developed smaller accelerators which will be used in other hospitals.

Drs. Harold Schneidman and William Watson of the Dermatology Department conducted a retrospective study on the effect of the electron beam in comparison to other methods of treatment. In a pilot study of 51 mycosis patients (treated at the Stanford Medical Center in the Radiology Department), the investigators developed a data gathering form. The coded information was keypunched and read into ACME as a data file, which was computed via a number of input-output programs. The investigators were able to learn from their preliminary study that by applying the electron beam at an early stage of the mycosis that longer periods of remission will result.

Name: Nye, W. Project: STUDENT

Department: Medicine - Micro

Project Description: Under this user name, several people in the Department have used this project for statistical calculations and bibliography compilations. Several of the users have been graduate students of the Department or postdoctoral fellows.

Name: Petralli, J. Project: MED_DATA

Department: Medicine - Infectious Diseases

Project Description: To improve the quality of antibiotic sensitivity data (high potency single disc method) and to guide the interpretation of results and antibiotic selection a computer program has been developed. Clinical information and zone sizes are entered into the ACME computer each day. Each zone size is compared with limits based on previous results and unusual values are challenged for further study. This system converts zone sizes to resistant, intermediate, or sensitive and prints final reports from its memory. Decreased potency of antibiotic disc is detected by comparison of periodically determined mean zone sizes. Limits of confidence of a single reading are established by review of zone sizes observed with a standard organism tested on different occasions. Knowledge of antibiotic sensitivities of organisms isolated from a specific site such as blood or urine will help to guide the selection of antibiotics before specific sensitivities are known. Such information is of value in selection of antibiotics in treating rarely encountered organisms with less well known sensitivity patterns or in selection of alternate antibiotics when the first choice drug is hazardous. Yearly comparison of antibiotic sensitivity patterns obtained will give information about major trends and suggest appropriate changes in treatment of various infections.

Name: Reynolds, W. Project: TEXTS

Department: Genetics

Project Description: This is a text management project to support general engineering efforts in instrumentation. The project supported is: W. E. REYNOLDS.S007. "TEXTS" contains commercial technical data and information retrieval programs.

Name: Rosenberg, L. Project: ALEXINE

Department: Medicine - Micro

Project Description: We are studying levels of serum complement in mice using ACME to carry out the appropriate statistical analyses and calculations. We are storing accumulated data on large numbers of mice of diverse pedigree. Using ACME facilitates data retrieval.

Name: Schneiderman, L. Project: PATCHART

Department: Medicine - Ambulatory

Project Description: The major objective is to develop better methods of clinical data processing in order to increase the precision of understanding of patterns and determinants of disease and to direct this information toward the improvement of patient care and student teaching.

Name: Cavalli-Sforza, L. Project: PAVIA

Department: Genetics

Project Description: Programs on storage were mostly developed for simulation of population genetics studies. One of them was developed for the I.C.R.O. course, and is still being used for research purposes. It deals with genetic drift in a human population and takes care of the effects of age structure. Another simulates nutrition, drift, and selection in a haploid population or in a diploid population with additive selection. Others simulate the propagation of hemoglobin mutants in Africa. I will have to use these programs in the coming year, but it is difficult at present to estimate actual use.

I am also planning to use ACME for a course for medical students, to teach computer use in simulation experiments that may illustrate the meaning of major statistical methods and some special use of statistics in medical research.

Name: Smallwood, R. Project: MEDIPLAN

Department: Medical Facilities Planning

Project Description: The Stanford Medical Facilities Planning Project was a two-year project that developed several analytical tools for aiding the design of medical facilities. This project synthesized several techniques for analyzing alternative designs for medical facilities both at the individual nursing unit level and at the overall macroscopic level. All of these tools required computational facilities for their implementation. Each of them resulted in several computer programs, all of which were programmed in ACME PL/1 and used the ACME system for debugging and development.

The Stanford Medical Facilities Planning Project was completed in June 1969 and a final report describing the results of this study has been submitted to the Commonwealth Fund. However, at the completion of the project there still remained several unanswered questions concerning the implementaion of the tools that were developed. Thus, an additional block of ACME service was allocated for testing some of the tools on a more expanded data base. This analysis has now been completed and a paper is in preparation that will describe the results of this work. In addition, a proposal for a demonstration project has been submitted which will, if funded, demonstrate the applicability of the results of this project on real design decisions faced by the Stanford University Hospital.

Name: Smith, P. Project: ventl

Department: Anesthesia

Project Description: This project is to find out if any parameter of mechanical ventilation (rate, pressure vt, i.e., ratio) influences paO_2 in newborn infants with respiratory failure. So far ACME has been used to store the measured variables and perform statistical maneuvers such as correlation coefficient calculations. A program for estimation of venous lung shunt is included.

Name: Solomon, G. Project: STRESS

Department: Psychiatry

Project Description: Concerned with the relationship of various forms of stress and environmental manipulation to immunity. The "STRESS" program is one that evaluates the significance of differences in antibody titers among control and experimental groups using a Kruskal-Wallis test of rank ordering of serial dilution tube numbers. This program is applicable to all of our work that involves antibody titrations by serial dilution, and is particularly useful for the immobilization assay of anti-flagellar antibody.

Name: Stuedeman, D. Project: ADMIN

Department: Genetics

Project Description: I keep an inventory of IRL capital equipment, update it occasionally, use the computer to locate items, sort by room, or whatever is required. It can be used for preparing reports to sponsors and preforming listings in various forms. I also apply the ACME system on various mathematical calculations used in my work, including a study of the University's retirement insurance program.

Name: Weissman, I. Project: THYMUS

Department: Pathology

Project Description: Our use of ACME has been limited to developing methods of applying statistical subroutines to our particular data needs. This has proved most valuable in handling volumes of data which required statistical analysis. For example, in the past year we have modified the chisquare and bastat subroutines to be able to compare 6 standard bits of data with up to 200 test items, giving the exact (p) values of each item. We have also studied the feasibility of setting up a program to analyze raw liquid scintillation spectrometry data from tissue samples, requiring analysis of 3 channels counting simultaneously within different "windows". Channels-ratios must then be obtained and compared to a plot of counting efficiency vs. channels ration, in order to obtain the actual disintegrations/minute/sample. Specific activities and fractional input activities must then be calculated, subtracting physical background counts (solution, bottles, filters) and control organ background counts. Until such programs are developed, and interfaced between ACME and our scintillation counters, we cannot properly study quantitive aspects of in vivo cellular migration streams in the lymphoid system.

Name: Whitcher, C. Project: ONCALLA

Department: Anesthesia

Project Description: Computerization of the anesthesia call schedule is necessary because the present manual method has proved unsatisfactory. Scheduling is complex, excessive errors have occurred despite due care, and the time required to write schedules is costly in terms of professional and secretarial time.

The anesthesia consultant staff includes 1 to 3 research fellows, and 12 to 14 full-time faculty physicians. Duties, responsibilities, and needs of these 13 to 17 individuals are diverse, including teaching, research, further training, as well as the administration of operating room, obstetrical and other forms of clinical anesthesia. Night, week ends, and holiday coverage must be scheduled to cover the various anesthetizing locations as well as vacations, sickness, and out-of-town meetings. Schedules are regularly prepared at monthly intervals. However, changes of plans frequently occur, calling for schedule revision, at additional expenditure of staff and secretarial effort. At least 10 different types of night call work have to be tallied and evenly divided.

The computer program already worked out offers several advantages. A running tally is accurate and immediately available. Schedule revisions required by the staff will be rapidly available and will require a minimum amount of professional and secretarial staff time. Finally, the estimated savings in staff time should be noted: 12 hours per month secretarial and an equal amount of anesthetist's time which could be more profitably spent in other duties such as income-producing clinical work.

Name: Zackheim, H. Project: PSORIASI

Department: Dermatology

Project Description: The present study is a determination of serum copper and ceruloplasmin levels in patients with psoriasis as compared to other skin diseases and healthy controls. I anticipate at least 60 determinations. I will want the mean, range, and standard deviation on this data.

Category 4

Name: Brast, N. Project: CATALOG

Department: Medical Student

Project Description: The two program files and two data files in this project are an experiment to develop a simple, efficient, and inexpensive arrangement for storing and searching bibliographic information, e.g., items in a reprint collection or references for a library research paper. I have used this project in connection with a paper for Physiology 150 and a laboratory project for Biochemistry 102.

During the next six months I shall attempt to complete development of the programs and, if they prove useful, submit them to ACME for inclusion in the Public Program Library.

Name: Brast, N. Project: RODENTS

Department: Medical Student

Project Description: This file contains programs which I have written for calculating descriptive and inferential statistics (e.g., t-test, analysis of variance, regression analysis) on experimental data. One of these programs, ANOVATWO (two-way analysis of variance, unequal numbers of data per cell) has been added to the ACME Public Program Library.

In the next six months I anticipate using this file for my own use in connection with course work in the Medical School.

Name: Britt, R. Project: STARR

Department: Medical Student

Project Description: These experiments will examine auditory pathway responses to meaningful acoustic stimuli. It is a common sense experience that the perception of sound is not determined simply by the physical parameters of the stimulus (intensity, spectral content), but that factors relating to attention, significance, and past experience also play important roles. An electrophysiological equivalent of the changing character of perception may be the dynamic alteration of evoked responses to unchanging sound stimuli recorded in auditory pathway of unanesthetized animals. These response modifications are due to activity in regulatory systems including the middle ear muscles, the olivo-cochlear bundle, and descending auditory connections. The specific experiments to be carried out are: (1) an analysis of single unit discharge patterns in central auditory stations in cats making an acoustic discrimination; (2) the effects of olivo-cochlear bundle activity on single unit discharge characteristics in central auditory pathway; and (3) the neural response pattern in auditory cortex of squirrel monkey in response to natural vocalizations. An analysis of how auditory unit discharges in response to meaningful acoustic stimuli differ from their response patterns to non-meaningful stimuli should extend our understanding of the role of the regulatory mechanisms in sound perception.

Name: Brody, W. Project: DIAGNOSI

Department: Medical Student

Project Description: Desire to use ACME to assist medical students with learning the process of history-talking and formulation of differential diagnosis. Case histories will be entered into the computer and students will interrogate the computer to simulate an actual history-talking session.

Name: Brody, W. Project: FLYHIGH

Department: Medical Student

Project Description: I am using ACME to perform calculations of simple simulations of non-linear models of information processing in sensory systems.

Name: Brown, B. N. Project: PROTEIN

Department: Medical Student

Project Description: Studies involve numerous assay data which must be summarized and analyzed. Also, studies of serum levels of therapeutic agents require correlations with age, body weight, suface area, etc.

In addition, a study is being made of pharmacotherapy in a group of 900 hospitalized pediatric patients. Biographical and medical data for each patient are stored in the ACME data files. Characteristics of the population and the nature of the drug usage are being analyzed.

Name: Buchanan, B. Project: STAT

Department: Medical Student

Project Description: This project is a renewal of the education experiment, begun in the Spring of 1969, whose purpose is to determine whether medical students can learn statistical concepts by computer simulation. The emphasis of the course is on using ACME to demonstrate the properties of various statistics and statistical tests.

Name: Buchanan, B. Project: GEN217

Department: Medical Student

Project Description: This project is a renewal of the education experiment, begun in the Spring of 1969, whose purpose is to determine whether medical students can learn statistical concepts by computer simulation. The emphasis of the course is on using ACME to demonstrate the properties of various statistics and statistical tests.

Name: Buchholz, W. Project: SPINJ

Department: Medical Student

Project Description: Investigation of time perspective, temporal relationships, and social functions in para and quadraplegics.

Name: Calvert, J. Project: TEXT

Department: Medical Student

Project Description: Mathematical models, e.g.:

1) Allocation of public funds with multiple objective and decision rules, especially with respect to Health, Education, and Welfare.

2) Modified epidemic equations as predicting the interactions of populations of neurons, with goals toward predicting evoked potentials with simple stimuli.

3) Allocation rules in health expenditures; by disease, when given incidence rates, probabilities of successful recovery with present treatments, direct and indirect costs per case, and average duration and mortality data.

Name: Edwards, D. Project: STRESS

Department: Medical Student

Project Description: Using ACME to conduct research on the effects of hormones on the alpha rhythm and temporal perception. Data relevant to these experiments are reduced statistically using ACME. In addition, specific programs are used to: 1) generate time intervals to minimize search time for the two-flash threshold, 2) to convert evoked potential amplitude measurements into micro volts, 3) to identify the two-flash threshold on the basis of a linearization assumption, and 4) to prepare and justify manuscripts. In the near future, specific programs will be employed (with the 1800) to identify hormone-induced changes in the EEG on the basis of Fourier and spectical analysis of recorded EEG's.

Name: Enzmann, D. Project: SWALLOW

Department: Medical Student

Project Description: The ACME computer is being used to assist in the study of both normal and abnormal motions of the human esophagus during normal and induced swallowing. A series of simultaneous pressure readings in various locations in the esophagus are taken by the use of water filled manometers connected to electrical pressure transducers. The electrical voltages representing the pressure data are sampled and converted to digital values 5 times a second, for each of the pressure measurement sources, using the IBM 1800 computer attached to the ACME computer system. We plan to have the ACME computer analyze the data from a swallow as it is obtained and provide immediate information back to the experimenter, via the terminal, of the properties of the last swallow. Various summary tables are kept during an experimental run regarding the properties of all the swallows obtained so far, and are available for a final summary of the experimental data. Initially all the data obtained during an experimental run will be saved on the ACME data files to allow different methods of analysis of the data to be explored.

Name: Gamel, J. Project: DOGLAB

Department: Medical Student

Project Description: One of the parameters to be derived from indicator dilution measurements of pulmonary blood flow is the "impulse response", which is essentially the distribution of transit times of particles through the lungs. If $Ci(t)$ represents the dye concentrations in the right heart following injection of a bolus of dye at $t=0$ and $Co(t)$ represents the concentration in the left heart, then the impulse response $h(t)$ is described by the equation:

$$Co(t) = \int_{s=0}^{s=t} h(s)Ci(t-s)ds$$

Replacing the integral with a summation over equally spaced intervals of time:

$$Co(n) = \sum_{i=0}^{n} h(i)Ci(n-i)$$

Thus a program can be written for a digital computer which solves for the function $h(t)$ when given the values for $Ci(t)$ and $Co(t)$.

However, a simple staightforward solution yields an impulse response which is hopelessly disrupted by artifacts in the collected data. A technique must be employed which somehow filters the data. Several possible methods are known; one has in fact been successfully used. The program was executed on the Burroughs 5500, a machine which has twelve significant figures in regular precision and twenty-four with double precision. A similar program attempted on ACME accumulated so much error during execution that it proved useless. Thus if we are to achieve our goal using ACME, we must somehow obtain greater precision than is now available. Our current efforts are directed at this problem of insufficient precision.

Name: Gelfand, M. Project: CARCAT

Department: Medical Student

Project Description: Project "carcat" analyzes cardiac catheterization pressure tracings in children. From catheters in the right and left heart, pressure tracings to determine atrial, ventricular, arterial, venous and wedge pressures. Currently the values in millimeter of mercury are calculated for the a and u waves, x and y troughs, and mean pressures in the artia and great veins, for systolic and end-diastolic pressures in the ventricles, for systolic, diastolic and mean pressures in the great arteries, and for mean pressures for the wedge positions. These values are calculated immediately and printed out on the computer terminal in the catheterization room.

At this time, efforts are under way to improve and ascertain the accuracy of the algorithms used in pattern recognition for atrial and ventricular pressure tracings.

The basic data acquisition and analysis system that has been set up will also be used to store data acquisition and the analysis system that has been set up will also be used to store data for additional calculations and for the preparation of reports. As data is accumulated in storage from cardiac catheterizations and from other sources of clinical information, it will be possible to analyze rapidly large amounts of clinical data using the ACME computer. Research into methods of storing and recalling data for analysis of clinical information will be an important part of our future efforts.

Name: Gleason, C. Project: CORTMEAS

Department: Medical Student

Project Description: I have been using ACME primarily in an educational way to learn how computers can be used in electro-physiological research.

Name: Hahn, P. Project: OXYTOX

Department: Medical Student

Project Description: This project is concerned with the interpretation, quantification, and systematic retrieval of information from gel electrophoreses. In our laboratory, we are looking only at proteins separated by electrophoresis on acrylamide gels. Since it is very difficult to get clean backgrounds for the electrophoresis columns, it is highly desirable to have a computational program capable of analyzing multiple overlapping bands, correcting the peak positions and integrated areas of these bands to their appropriate baseline positions, and storing the information in a useful form.

Name: Harris, R. Project: PNP

Department: Medical Student

Project Description: Our project is an attempt to demonstrate correlations between the emotions experienced by subjects and their own appraisals of certain aspects of their environments. Our concept is that emotions arise when events in the individual's situation come into certain specified relations with his goals. For example, if an individual perceives such events as facilitating rather than hindering his potential achievement of the goal, then he will experience a positive emotion rather than a negative one. Similarly, other dimensions, such as the extent to which the individual feels in control of the situation, the extent to which he is explicitly pursuing a goal within the situation, and the degree of certainty with which events in the situation affect his potential achievement of the goal, are also hypothesized to be important in determining which of a number of different emotions the individual will experience in any situation. The emotional state consequent to such appraisals is thought to have physical and cognitive effects specific to it. Cognitive effects include changes in the perception of time. For example, different emotional states may be associated with different focus of attention with respect to past, present, or future events in the life of the individual. By physical effects we mean the individual's sensations of changes occurring within his body as part of the emotional state. We are developing standard inventories for obtaining objective measures of these subjective variables.

The study will have two parts. The first involves the collection of normative data from normal subjects with respect to six emotions; namely, anger, anxiety, depression, joy, love, and calm. Subjects will be instructed to recall experiences that typify their conception of these states and to describe them on our inventories. We will use this data to construct normative profiles of each emotional state and to calculate correlations between different categories of items on our inventories. The second part of the study will employ a number of expectant fathers, who will be tested in the waiting room prior to delivery and again after the birth. This data will be used to determine whether our previous normative data is useful in the identification of actual emotional states and to confirm the correlations found in the earlier part of the study. We plan to collect the data for the first part of the project by the end of February and to process the data at that time. Data from the second part of the study will be collected by the end of April and processed then.

If successful, the study could have important theoretical and methodological implications. Theoretically, we hope to demonstrate that an individual's subjective appraisal of events in relation to his goals are important determinants of his emotional state. Methodologically, we hope to show that certain forms of inventories yield replicable descriptions of subjective events. Normative profiles such as I have mentioned could thus be constructed and employed as operational definitions of emotional states in a number of experimental contexts. Studies in the physiological correlates of emotions are but one class of examples.

Name: Helikson, M. Project: LBF

Department: Medical Student

Project Description: Evaluation of liver blood flow with radioactive isotopes. Use of the ACME Facility: storage of data, statistical analysis, and evaluation of curves into exponential components. We are using radioactive Xenon-133 to evaluate the hepatic-arterial and portal-venous contributions to hepatic blood flow in dogs. It is our objective to develop a relatively quick and technically easy method for determining blood flow in humans on a screening basis and in pathologic states.

Name: Jan, W. Project: NOMAN

Department, Medical Student

Project Description: Processing, storage, display, and statistical analysis of laboratory data and text editing; development of programs to aid decision making; and information storage, retrieval, and display.

Name: Levine, R. Project: CPS

Department: Medical Student

Project Description: The purpose of the initial investigations is to isolate and purify the carbamyl phosphate synthetase involved in fetal pyrimidine synthesis. This enzyme is apparently distinct from that providing carbamyl phosphate for the urea cycle, whose enzymatic activities appear later in gestation than the de novo pyrimidine activities.

The major work thus far has been on development of a rapid simple assay for the enzyme. My primary use of ACME has been to evaluate and process data obtained during assays. There is no question that without ACME's assistance, the already burdensome assay work would become intolerable.

It is expected that as work with the purification progresses, we will examine possible regulatory and control mechanisms in which this enzyme may be important.

Name: Lipp, M. Project: MEDSPOT

Department: Medical Student

Project Description: Survey medical students and graduate physicians regarding their experience with and opinions of marihuana. We intend to distribute questionnaires to medical students at several medical schools (Stanford, Nebraska, Buffalo, and perhaps others), disguising the specific origins of each set of data in any published report. We will then expand our distribution of questionnaires to graduate physicians. All responses will be strictly voluntary and ananymous.

Name: Miller, S. Project: LEARN

Department: Medical Student

Project Description: Analysis of data from an ANGER scintillation camera in connection with kidney blood flow studies.

Name: Monnin, L. Project: DISCRIM

Department: Speech and Hearing Sciences

Project Description: A study of the relationship of articulation and identification abilities of normal speaking and speech defective children. Distorted speech stimuli will be presented to the subjects so that an identification threshold can be estimated.

Name: Nestor, L. Project: DIFFDX

Department: Medical Student

Project Description: In medicine, many diagnoses are missed merely because certain disease entities are overlooked as possible causes of the observed symptoms. This project will be used to develop a system, which can be easily adapted to general practice, which will bring to the doctor's attention diseases which he may not have considered in his differential diagnosis.

Name: Nola, G. Project: DIGMI

Department: Medical Student

Project Description: This project will serve to perform statistical analysis of hemodynamic parameters, i.e., right atrial pressure, left atrial pressure, aortic pressure, left ventricular systolic pressure, left ventricular dp/dt, aortic flow, and EKG. The analysis would include mean, standard error, % change, correlation, and paired and unpaired +- test for permanently entered data.

Name: Nowack, W. Project: CATECHOL

Department: Medical Student

Project Description: Computer analysis and simulation of the metabolism of catecholamines in the rat. The changes in different rate constants offer different behavioral situations. Also drug treatments will be studied.

Name: Peters, J. Project: BIOSTAT

Department: Medical Student

Project Description: Conducting statistical research in the area of evaluation of residuals and outliers in parallel line assays.

Name: Pope, S. Project: AY21011

Department: Medical Student

Project Description: Statistical analysis of data sets of cardiovascular function parameters of various pharmaecologic agents.

Name: Portlock, C. Project: PAUP

Department: Medical Student

Project Description: The study involves developing some knowledge to understand the motivations for pregnancy. A great deal of quantitative information is obtained from the patient through questionnaires and through rating by observers of interview behavior. This quantified data is then transformed into a form that can be used for computer analysis. The computer will be used to do a number of types of analyses, i.e., an analysis of the answering patterns of 80 subjects on a recently developed questionnaire.

Name: Propper, R. Project: TEST1

Department: Medical Student

Project Description: This project will involve the study of inter-relationship of annogenesis glucomedgenesis in the perfused kidney.

Name: Raybin, D. Project: ASSAYS

Department: Medical Student

Project Description: Write, store, and run programs: 1) to calculate results of assays and 2) to handle other data calculations, statistics, etc. Eventually, write up results using text handling programs.

Name: Rosenfeld, R. Project: CCUPSYCA

Department: Medical Student

Project Description: Studying the psychophysiological adaptation of male patients to the Coronary Care Unit. The goals of the research are to try to establish some relationships between psychological variables and physiological variables, particularly as these latter affect the morbidity and mortality of patients with acute myocardial infarctions. The patients on the Coronary Care Unit are under constant daily observation and have a large number of physiological functions monitored. The study will provide a huge amount of data daily on each patient. The ACME computer will be used to store this data and make a number of statistical manipulations of the data.

Name: Rosenthal, W. Project: RESEARCH

Department: Medical Student

Project Description: I am using the computer essentially for statistical analysis of data in connection with various experimental studies in speech and language pathology and normal speech perception. These studies include research in effectiveness of stuttering therapy, speech and auditory perception in aphasic children, and normal speech perception in adults and children.

Name: Sachs, D. Project: POPCIT

Department: Medical Student

Project Description: ACME will be used as a text editing system for a manuscript which is being prepared dealing with various aspects of environmental medicine and the population explosion. ACME will also be used to study population growth rates in various nations, correlate these with natural resource use, and then calculate projections for the next 10, 20, 30, 40 year periods.

Name: Schwartz, B. Project: CELLSAGE

Department: Medical Student

Project Description: 1) Statistical modeling of the growth, development, and ultimate senescence of cultured human fibroblasts. Special attention will be paid to the possibility that the in vitro senescence of tissue culture cells might parallel age-related degenerative changes found in the intact organism. Variation analyses will be performed on clones of cells. It appears that clone size variation may be accounted for by two processes: a) an exponential, randomly distributed interdivision time and b) a probability of cell mortality, possibility related to time in culture or passage level, which may also be amenable to statistical simulation.

2) The storage, sorting, logical processing, and retrieval of data and observations related to cellular aging. As the amount of descriptive work done in this area explosively increases, it might be helpful to be able to instantly access all the published data dealing with the effects of age on some specific cellular function. Also, in addition to its information retrieval aspects, a routine in the program might be designed to seek logical relationships among the data that might otherwise have been obscured by the diversity and large quantity of the information to be considered.

Name: Sethi, S. Project: ISOTOPE

Department: Medical Student

Project Description: Analyzing the data from experiments being conducted to understand the replication of rhinoviruses. The data involves the calculations and plotting of data from the experiments which involve the radioisotopic counts in the lucrose gradient factions of RNA. Also, the data will be used to calculate the significance of results with respect to plaque assay of virus.

Name: Sinclair, A. Project: HEARTCEL

Department: Medical Student

Project Description: Pharmacological studies using cultured chick embryo cells. We have devised a system using television and subsequent photo-electric monitoring arrangements to record the beat time intervals and motion spike signals of individual cells in culture. We subject the cells to various dosage regimens of neuro- and cardio-active drugs and note the effects on rate, rhythmicity, and other parameters. At this stage, the primary data are the beat intervals. From these intervals (in specific time intervals after drug administration) we will need to compute average intervals, rates, standard deviations and errors of mean, and Spearman Rank Correlation Coefficients. After computing these parameters we will need drug/control ratios, t-testing, u-testing, and other comparative statistics.

Name: Smith, R. Project: FAMILY

Department: Medical Student

Project Description: The ACME system has been used to store analysis data from an experimental study of family structure which I conducted during the past year. The project contains one data file (SDM) and a number of program files to analyze the data. Most of the analysis has been completed during the past year, but some still remains to be done. I have also done some socio-physiological studies of kidney transplant patients, data which I will be entering in the near future. I plan to make intermittent use of ACME for further analysis of data from these projects during the next six months.